

TA-N110

SERVICE MANUAL

*US Model
AEP Model
UK Model
E Model*



SPECIFICATIONS

Audio power specifications

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8 ohm loads, both channels driven, from 20 - 20,000 Hz; rated 100 watts per channel minimum RMS power, with no more than 0.08% total harmonic distortion from 250 milliwatts to rated output

Other specifications

Continuous RMS power output
(both channels driven simultaneously)

(US model)
Stereo: 50 W + 50 W
(6 ohms, 0.08%, 20 Hz - 20 kHz)
Mono: 100 W (8 ohms, 0.08%, 20 Hz - 20 kHz)
(Models for Except US)
Stereo: 50 W + 50 W
(6 ohms, 0.08%, 20 Hz - 20 kHz)
Mono: 100 W (6 ohms, 0.08%, 20 Hz - 20 kHz)

Dynamic power

(US model)
75 W + 75 W (6 ohms)
(Models for Except US)
85 W + 85 W (8 ohms)

Power bandwidth (IHF)

12 Hz - 40 kHz (6 ohms, THD 0.12%)
(US model only)

Frequency response

STEREO/FLAT: 5 Hz - 200 kHz, +0/-3 dB
3D: 5 Hz - 80 Hz, +0/-3 dB (12 dB/Oct.)

Input sensitivity

STEREO: 180 mV (50 kohms)
3D: 110 mV (100 kohms)
FLAT: 180 mV (100 kohms)

Signal-to-noise ratio

105 dB (input shorted)

Speaker output

(US model)

Stereo: 6 - 16 ohms

Mono: 8 - 16 ohms

(Models for Except US)

Stereo/mono: 6 - 16 ohms

General

System

Complementary Darlington SEPP power amplifier,
with all stages direct coupled

Power requirements

US model: 120 V AC, 60Hz

AEP, WG model: 220V - 50/60Hz

UK model: 240V - 50/60Hz

E model: 120, 220, 240V - 50/60Hz

Power consumption

US model: 110 watts

Models for Except US: 140W

Dimensions

Approx. 470 x 120 x 265 mm (w/h/d)
(17 x 4 3/4 x 10 1/2 inches)

Models for Except US:

Approx. 430 x 120 x 265 mm (w/h/d)
(17 x 4 3/4 x 10 1/2 inches)

including projecting parts and controls

Weight

US model:

Approx. 5.9 kg (13 lb 1 oz), net

Models for Except US:

Approx. 5.3 kg (11 lb 11 oz), net

Design and specifications subject to change without notice.

STEREO POWER AMPLIFIER
SONY®



SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A.)

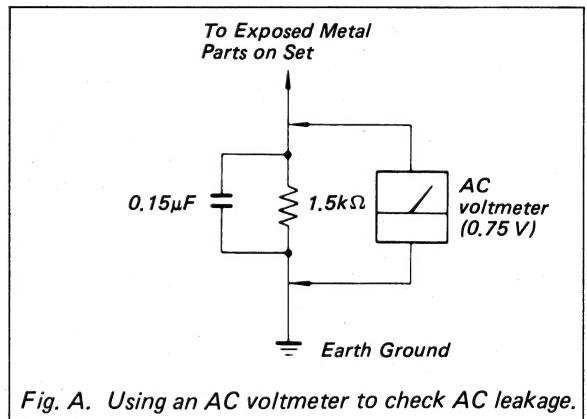
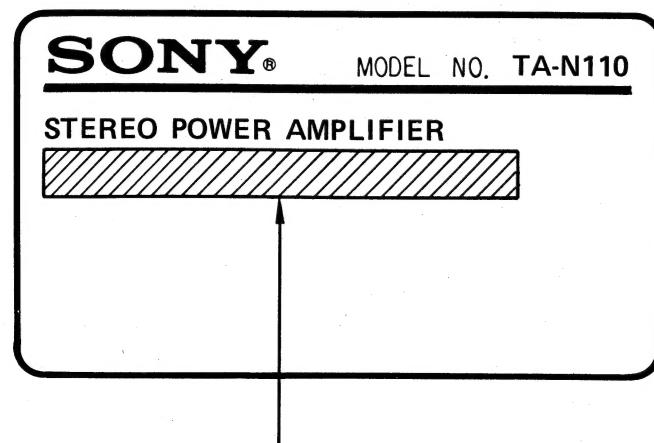


Fig. A. Using an AC voltmeter to check AC leakage.

MODEL IDENTIFICATION

— Specification Label —



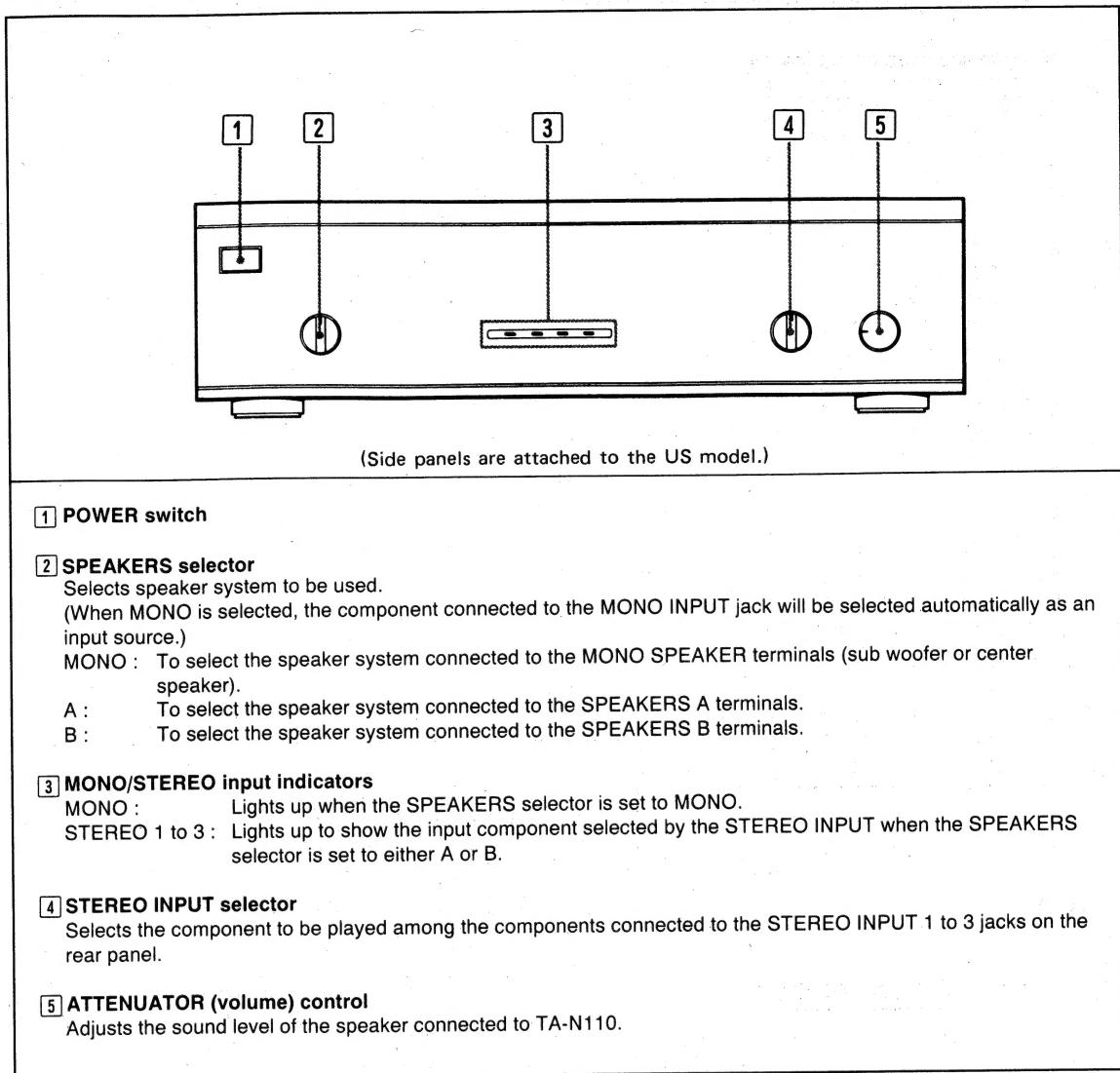
US model: AC: 120V 60Hz 110W
AEP, WG model: AC: 220V~50/60Hz 140W
UK model: AC: 240V~50/60Hz 140W
E model: AC: 120, 220, 240V~50/60Hz 140W

(WG model: West Germany)

SECTION 1

OUTLINE

1-1. LOCATION AND FUNCTION OF CONTROLS

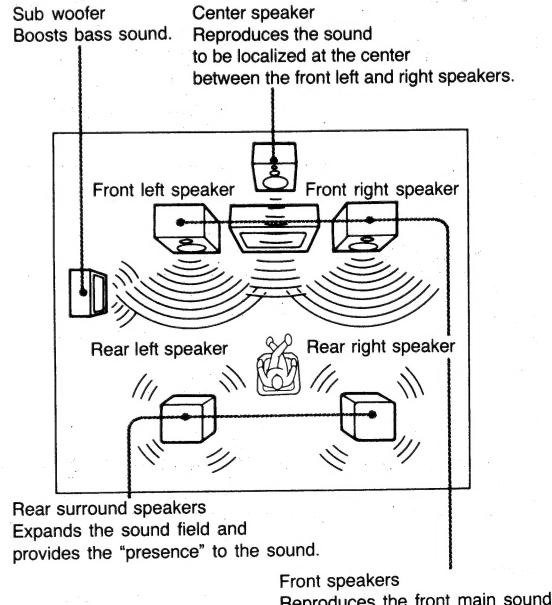


1-2. OVERVIEW

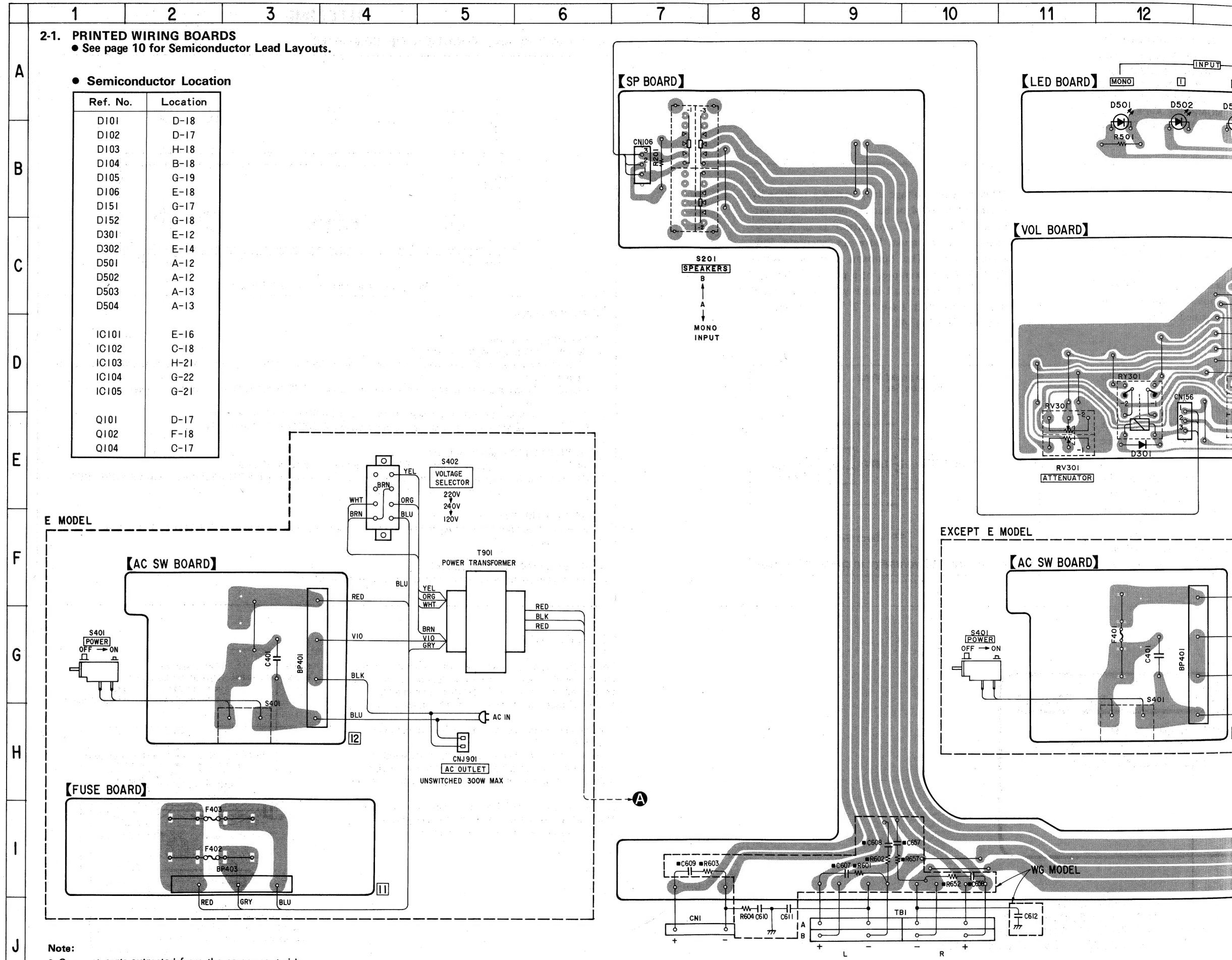
The TA-N110 is a power amplifier with selectable stereo/mono operation mode. It is suitable for use in a surround sound system. When the TA-N110 is connected to the surround processor, it can be used as follows.

- Stereo power amplifier for driving the rear surround speakers
- Stereo power amplifier for driving the front speakers
- Monaural power amplifier for driving the sub woofer.
- Monaural power amplifier for driving the center speaker.

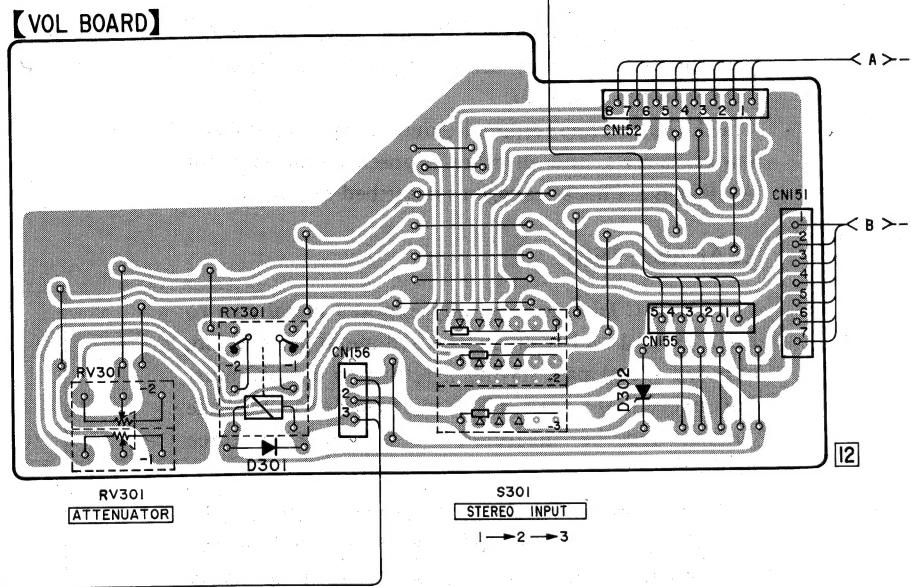
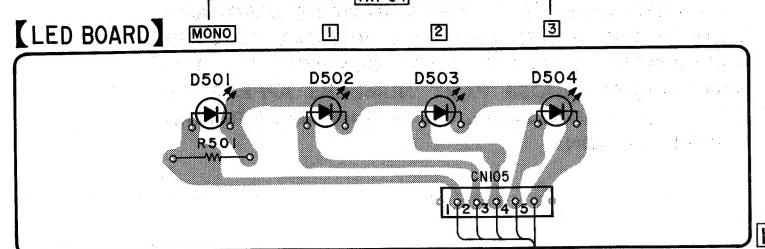
As the TA-N110 is operable with an input voltage lower than normal power amplifier, it can be used also as an integrated amplifier or 3D system amplifier.



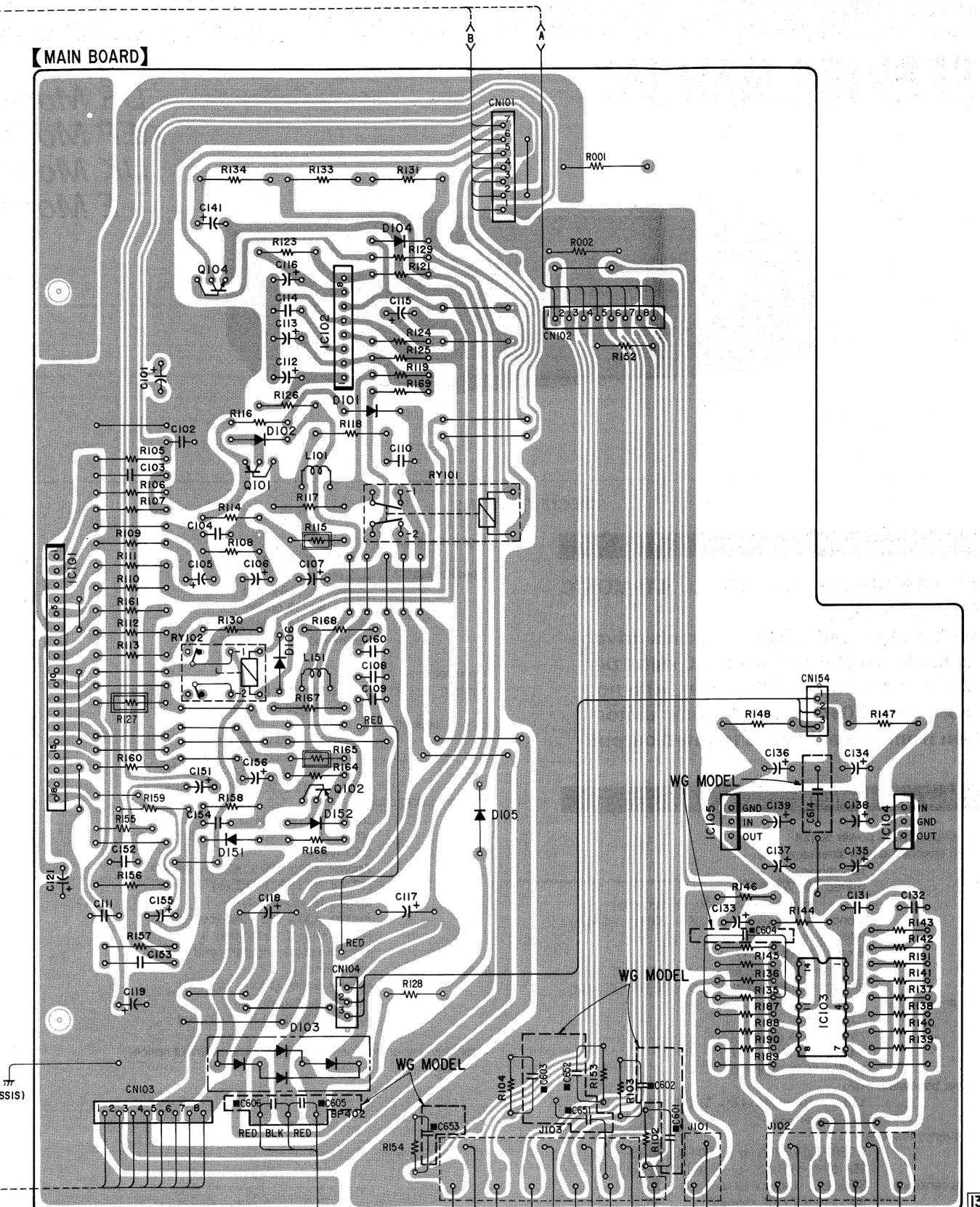
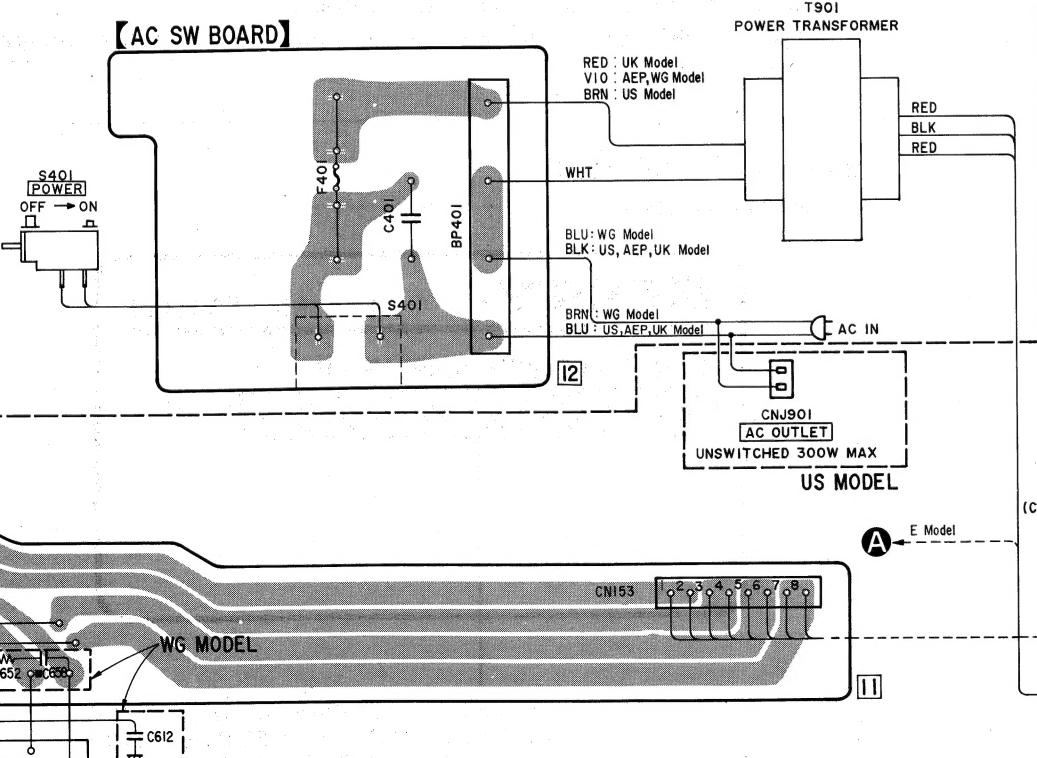
SECTION 2 DIAGRAMS



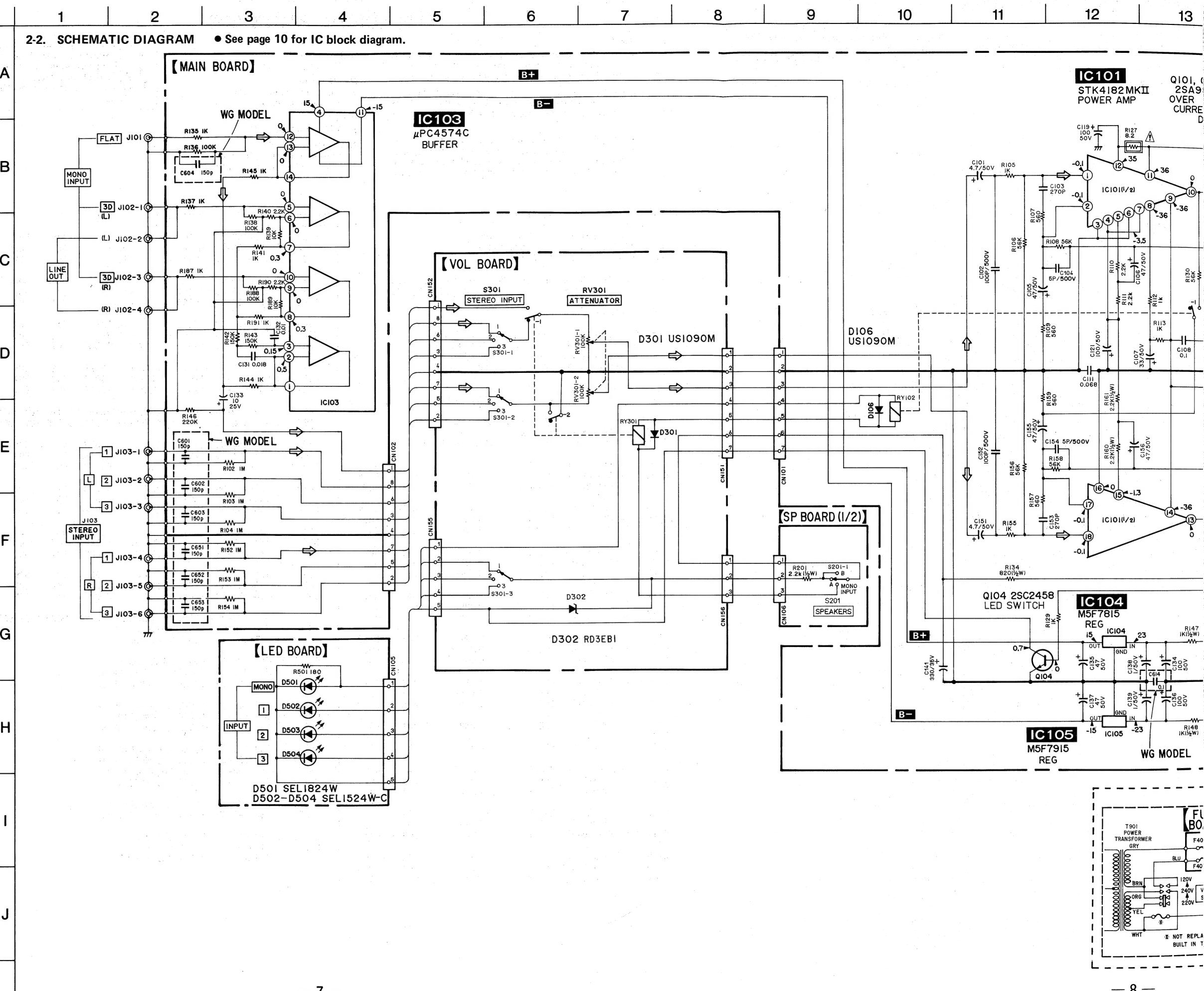
11 12 13 14 15 16 17 18 19 20 21 22



EXCEPT E MODEL



2-2. SCHEMATIC DIAGRAM • See page 10 for IC block diagram.



10

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12

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14

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16

17

18

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A

B

C

D

E

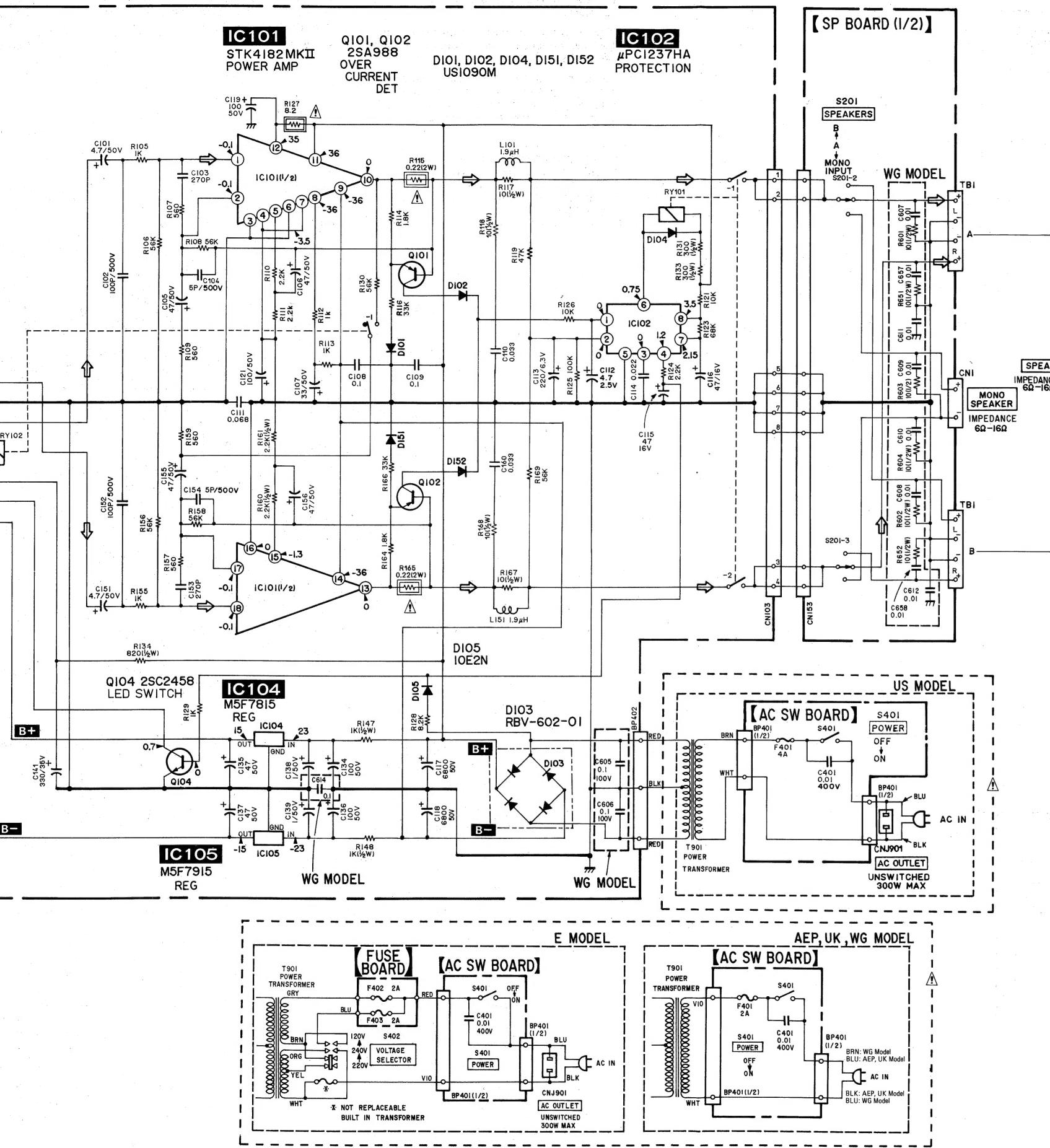
F

G

H

I

J



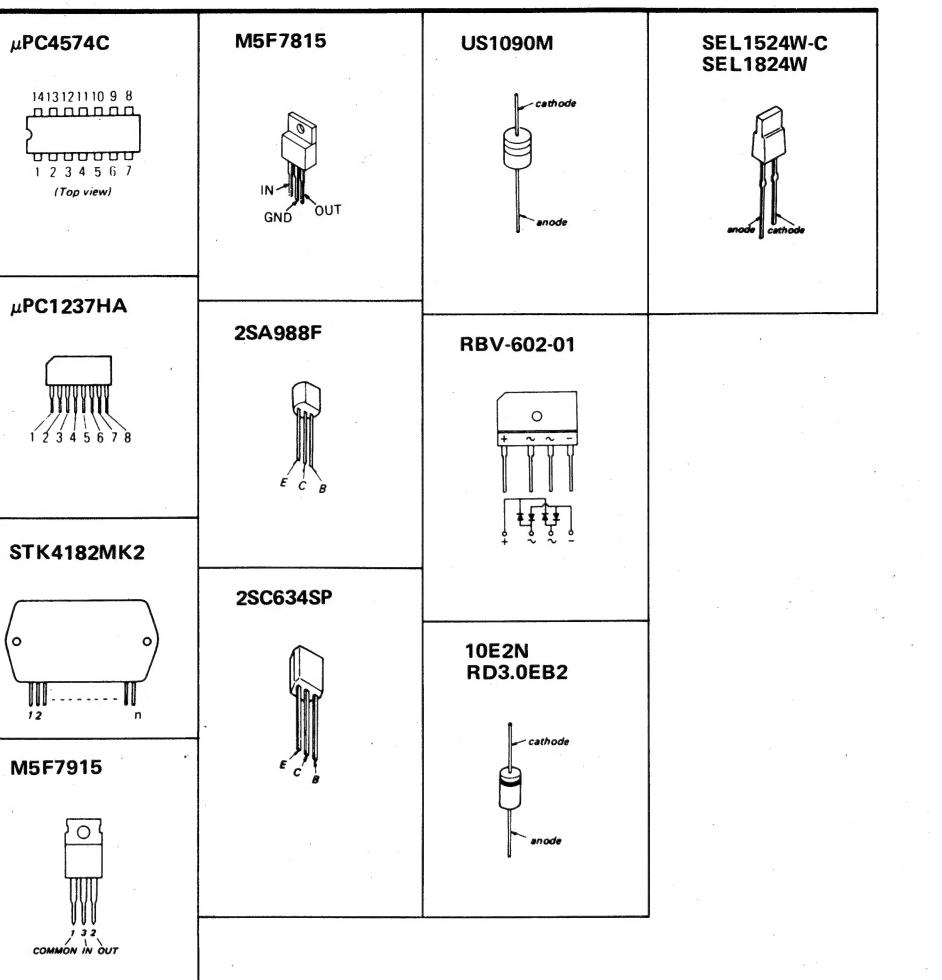
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Due to standardization, part number suffix -XX and -X differ from the parts specified in the parts list.

US model

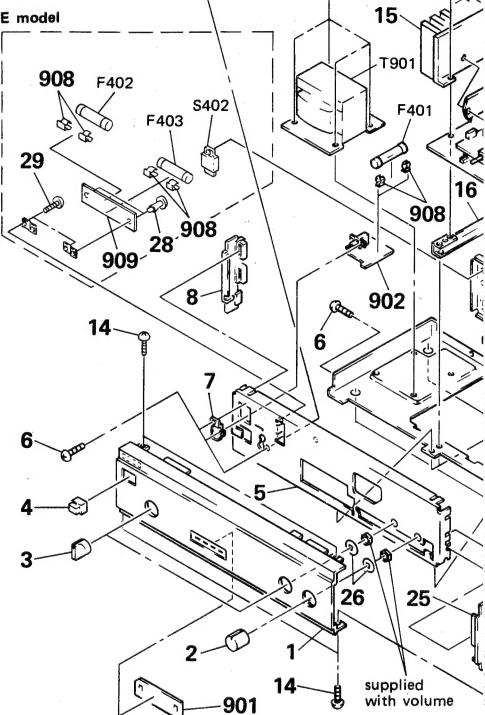
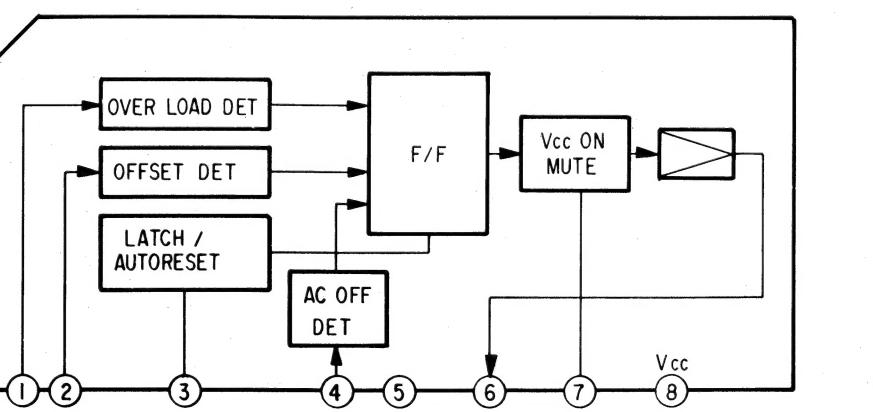
● Semiconductor Lead Layouts



The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

● IC BLOCK DIAGRAMS

IC103 μPC1237HA

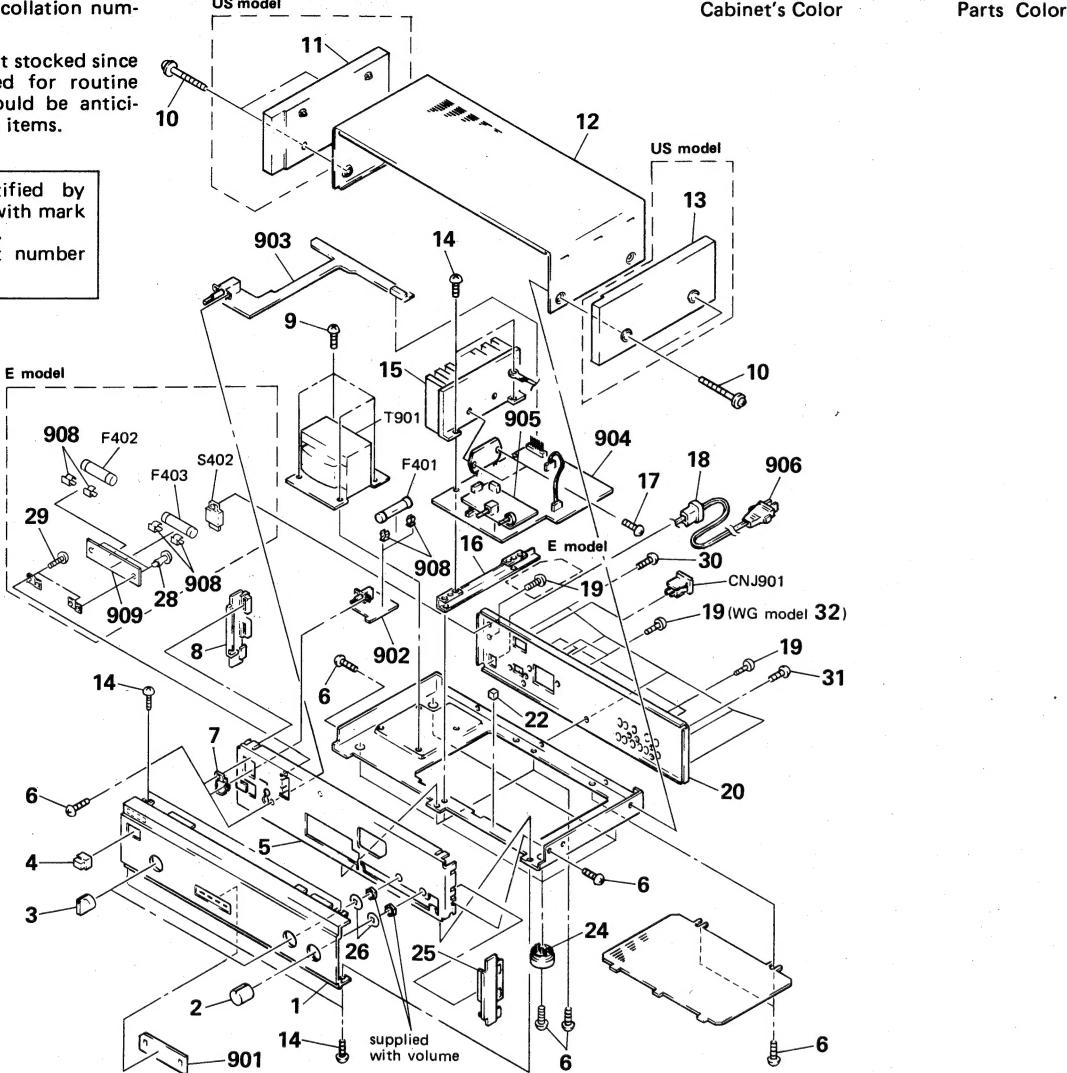


| No. | Part No. | Description | Remarks | No. | Part No. | |
|-----|---------------|-----------------------------------|---------|-----|----------|-----------------|
| 1 | A-4323-003-A | PANEL ASSY | | 29 | 7-685-1 | |
| 2 | 4-916-746-01 | KNOB (DIA.21) | | 30 | 7-685-8 | |
| 3 | 4-916-745-01 | KNOB (DIA.21) | | 31 | 7-621-8 | |
| 4 | 4-917-460-01 | KNOB, POWER | | 32 | 4-887-7 | |
| 5 | *4-921-370-03 | CHASSIS, SUB | | | | |
| 6 | 7-682-548-04 | SCREW +BVTT 3X8 (S) | | 901 | *1-626-6 | |
| 7 | *4-921-360-01 | BRACKET (SM) | | 902 | *1-626-6 | |
| 8 | *4-921-365-01 | PANEL (LEFT), SIDE | | 903 | *1-626-6 | |
| 9 | 7-682-560-04 | SCREW +BVTT 4X6 (S) | | 904 | *A-4388- | |
| 10 | 3-704-366-01 | (EXCEPT US)...SCREW (CASE)(M8X8) | | 905 | *A-4388- | |
| | 3-721-342-11 | (US).....SCREW, SIDE WOOD | | | 906 | *1-559-8 |
| 11 | X-4904-486-1 | PLATE (LEFT) ASSY, SIDE | | | 907 | *1-556-0 |
| 12 | *3-327-853-41 | CASE | | | 908 | *1-556-0 |
| 13 | X-4904-485-1 | PLATE (RIGHT) ASSY, SIDE | | | 909 | *1-556-7 |
| 14 | 3-703-685-21 | SCREW (+BV 3X8) | | | 910 | *1-533-1 |
| 15 | *4-921-322-01 | HEAT SINK (A) | | | 911 | *1-628-3 |
| 16 | *4-921-314-01 | BRACKET (P) | | | 912 | *1-532-7 |
| 17 | 7-685-650-79 | SCREW +BVTP 3X16 TYPE2 IT-3 | | | 913 | *CNJ901.1-526-7 |
| 18 | *3-703-244-00 | (EXCEPT E)...BUSHING (2104), CORD | | | 914 | *CNJ901.1-526-8 |
| | *3-703-571-11 | (E).....BUSHING (S)(4516), CORD | | | 915 | F401 Δ-1-532-2 |
| 19 | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S | | | 916 | F401 Δ-1-532-5 |
| 20 | *4-921-359-11 | (US)...PANEL, BACK | | | 917 | F402 Δ-1-532-2 |
| | *4-921-359-21 | (E)...PANEL, BACK | | | 918 | F403 Δ-1-532-2 |
| | *4-921-359-31 | (AEP)...PANEL, BACK | | | 919 | S402 Δ-1-570-3 |
| | *4-921-359-41 | (WG)...PANEL, BACK | | | 920 | T901 Δ-1-449-4 |
| | *4-921-359-51 | (UK)...PANEL, BACK | | | 921 | T901 Δ-1-449-4 |
| 22 | 9-911-843-XX | CUSHION | | | 922 | T901 Δ-1-449-4 |
| 24 | X-4911-201-1 | (US,E).....FOOT ASSY | | | 923 | T901 Δ-1-449-4 |
| | X-4885-935-1 | (AEP,WG,UK)....FOOT ASSY | | | 924 | T901 Δ-1-449-4 |
| 25 | *4-921-364-01 | PANEL (RIGHT), SIDE | | | 925 | T901 Δ-1-449-4 |
| 26 | 3-533-938-00 | CLOTH | | | 926 | 3-533-938-00 |
| 28 | 4-812-134-00 | (E)...RIVET NYLON, 3.5 | | | 927 | 4-812-134-00 |

SECTION 3 EXPLODED VIEW

parts with no reference
exploded views are not
on parts of an assembled
set with a callout num-
ber column.
* are not stocked since
not required for routine
delay should be anticipated
these items.

Components identified by
dotted line with mark
for safety.
with part number



| Part No. | Description | Remarks | No. | Part No. | Description | Remarks |
|--------------|-----------------------------------|---------|----------------------|-------------------|----------------------------------------------------|---------|
| A-4323-003-A | PANEL ASSY | | 29 | 7-685-134-19 | (E)...SCREW +P 2.6X8 TYPE 2 N-S | |
| 4-916-746-01 | KNOB (DIA.21) | | 30 | 7-685-872-09 | SCREW +BVTT 3X8 (S) | |
| 4-916-745-01 | KNOB (DIA.21) | | 31 | 7-621-849-00 | SCREW, TAPPING | |
| 4-917-460-01 | KNOB, POWER | | 32 | 4-887-711-21 | (WG)...SCREW, TERMINAL, CLAW, +BVTP | |
| 4-921-370-03 | CHASSIS, SUB | | | | | |
| 7-682-548-04 | SCREW +BVTT 3X8 (S) | | 901 | *1-626-604-11 | PC BOARD, LED | |
| 4-921-360-01 | BRACKET (SW) | | 902 | *1-626-605-11 | PC BOARD, AC SW | |
| 4-921-365-01 | PANEL (LEFT), SIDE | | 903 | *1-626-603-11 | PC BOARD, SP | |
| 7-682-560-04 | SCREW +BVTT 4X6 (S) | | 904 | *A-4388-797-A | (EXCEPT WG)...MOUNTED PCB, MAIN | |
| 3-704-366-01 | (EXCEPT US)...SCREW (CASE) (M8X8) | | 905 | *A-4388-799-A | (WG)...MOUNTED PCB, MAIN | |
| 3-721-342-11 | (US)...SCREW, SIDE WOOD | | 906 | *1-559-819-11 | (US)...CORD, POWER | |
| X-4904-486-1 | PLATE (LEFT) ASSY, SIDE | | 907 | *1-556-091-00 | (E)...CORD, POWER | |
| 3-327-853-41 | CASE | | 908 | *1-556-035-00 | (UK)...CORD, POWER | |
| X-4904-485-1 | PLATE (RIGHT) ASSY, SIDE | | 909 | *1-555-750-00 | (AEP,WG)...CORD, POWER | |
| 3-703-685-21 | SCREW (+BV 3X8) | | | | | |
| 4-921-322-01 | HEAT SINK (A) | | 908 | 1-533-183-11 | HOLDER, FUSE | |
| 4-921-314-01 | BRACKET (P) | | 909 | *1-628-354-00 | (E)...PC BOARD, FUSE | |
| 7-685-650-79 | SCREW +BVTP 3X16 TYPE2 IT-3 | | | | | |
| 3-703-244-00 | (EXCEPT E)...BUSHING (2104), CORD | | ACNJ901.1-526-774-11 | (E)...OUTLET, AC | | |
| 4-921-571-11 | (E)...BUSHING (S)(4516), CORD | | ACNJ901.1-526-882-00 | (US)...OUTLET, AC | | |
| 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S | | F401 | *1-532-203-00 | (AEP,UK,WG)...FUSE, TIME-LAG (2A) | |
| | | | F401 | *1-532-579-00 | (US)...FUSE, GLASS TUBE (4A) | |
| 4-921-359-11 | (US)...PANEL, BACK | | F402 | *1-532-203-00 | (E)...FUSE, TIME-LAG (2A) | |
| 4-921-359-21 | (E)...PANEL, BACK | | F403 | *1-532-203-00 | (E)...FUSE, TIME-LAG (2A) | |
| 4-921-359-31 | (AEP)...PANEL, BACK | | S402 | *1-570-307-11 | (E)...SWITCH, VOLTAGE CHANGE (VOLTAGE SELECTOR) | |
| 4-921-359-41 | (WG)...PANEL, BACK | | T901 | *1-449-434-11 | (US)...TRANSFORMER, POWER | |
| 4-921-359-51 | (UK)...PANEL, BACK | | T901 | *1-449-436-11 | (AEP,WG)...TRANSFORMER, POWER | |
| 9-911-843-X | CUSHION | | T901 | *1-449-435-11 | (E)...TRANSFORMER, POWER | |
| X-4911-201-1 | (US,E)...FOOT ASSY | | T901 | *1-449-445-11 | (UK)...TRANSFORMER, POWER | |
| X-4885-935-1 | (AEP,WG,UK)...FOOT ASSY | | | | | |
| 4-921-364-01 | PANEL (RIGHT), SIDE | | | | | |
| 3-533-938-00 | CLOTH | | | | | |
| 4-812-134-00 | (E)...RIVET NYLON, 3.5 | | | | | |

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SECTION 4 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: $\mu\mu$ F.

RESISTORS:

All resistors are in ohms.

- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:
UA...: μ A..., UPA...: μ PA...,
UPC...: μ PC, UPD...: μ PD...

The components identified by
mark Δ or dotted line with mark
 Δ are critical for safety.
Replace only with part number
specified.

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description |
|---------|------------------------|---------------------------------|------------------------------|------------------------|----------------------------------------|
| 901 | *1-626-604-11 | PC BOARD, LED | C151 | 1-123-369-00 | ELECT |
| 902 | *1-626-605-11 | PC BOARD, AC SW | C152 | 1-107-169-00 | MICA |
| 903 | *1-626-603-11 | PC BOARD, SP | C153 | 1-162-287-31 | CERAMIC |
| 904 | *A-4388-797-A | (EXCEPT WG)...MOUNTED PCB, MAIN | C154 | 1-107-026-00 | MICA |
| | *A-4388-799-A | (WG)...MOUNTED PCB, MAIN | C155 | 1-123-359-00 | ELECT |
| 905 | *1-626-602-11 | PC BOARD, VOL | C156 | 1-123-359-00 | ELECT |
| 906 | Δ .1-559-819-11 | (US)...CORD, POWER | C160 | 1-136-159-00 | FILM |
| | Δ .1-556-091-00 | (E)...CORD, POWER | C401 | Δ .1-161-744-00 | CERAMIC |
| | Δ .1-556-035-00 | (UK)...CORD, POWER | C601 | 1-164-075-11 | (WG)...CERAMIC |
| 908 | 1-533-183-11 | HOLDER, FUSE | C622 | 1-164-075-11 | (WG)...CERAMIC |
| 909 | *1-628-354-00 | (E)...PC BOARD, FUSE | C603 | 1-164-075-11 | (WG)...CERAMIC |
| | | | C604 | 1-164-075-11 | (WG)...CERAMIC |
| | | | C605 | 1-108-389-00 | (WG)...PE TEREPHTHALATE |
| | | | C606 | 1-108-389-00 | 0.1MF 10% 100V |
| | | | C607 | 1-136-153-00 | (WG)...FILM |
| | | | C608 | 1-136-153-00 | 0.01MF 5% 50V |
| | | | C609 | 1-136-153-00 | 0.01MF 5% 50V |
| | | | C610 | 1-136-153-00 | (WG)...FILM |
| | | | C611 | 1-136-153-00 | 0.01MF 5% 50V |
| | | | C612 | 1-136-153-00 | (WG)...FILM |
| | | | C614 | 1-136-153-00 | (WG)...FILM |
| | | | C651 | 1-164-075-11 | (WG)...CERAMIC |
| | | | C652 | 1-164-075-11 | (WG)...CERAMIC |
| | | | C653 | 1-164-075-11 | (WG)...CERAMIC |
| | | | C657 | 1-136-153-00 | (WG)...FILM |
| | | | C658 | 1-136-153-00 | (WG)...FILM |
| | | | CN1 | 1-536-707-21 | TERMINAL BOARD, PUSH 2P (MONO SPEAKER) |
| | | | CN101 | *1-560-532-00 | PIN, CONNECTOR 7P |
| | | | CN102 | *1-564-599-11 | PIN, CONNECTOR 8P |
| | | | CN103 | *1-564-599-11 | PIN, CONNECTOR 8P |
| | | | CN104 | *1-562-327-00 | SOCKET, CONNECTOR 3P |
| | | | CN105 | *1-562-250-00 | SOCKET, CONNECTOR 5P |
| | | | CN106 | *1-562-327-00 | SOCKET, CONNECTOR 3P |
| | | | CN151 | *1-561-651-00 | SOCKET, CONNECTOR 7P |
| | | | CN152 | *1-562-573-11 | SOCKET, CONNECTOR 8P |
| | | | CN153 | *1-562-573-11 | SOCKET, CONNECTOR 8P |
| | | | CN154 | *1-562-327-00 | SOCKET, CONNECTOR 3P |
| | | | CN155 | *1-564-508-11 | PLUG, CONNECTOR 5P |
| | | | CN156 | *1-562-327-00 | SOCKET, CONNECTOR 3P |
| | | | Δ CNJ901.1-526-774-11 | (E)...OUTLET, AC | |
| | | | Δ CNJ901.1-526-882-00 | (US)...OUTLET, AC | |
| | | | D101 | 8-719-002-83 | DIODE US1090M |
| | | | D102 | 8-719-002-83 | DIODE US1090M |
| | | | D103 | 8-719-302-38 | DIODE RBV-602-01 |

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| Ref.No. | Part No. | Description |
|---------|----------------|---------------------------------------|
| D104 | 8-719-002-83 | DIODE US1090M |
| D105 | 8-719-200-77 | DIODE 10E2N |
| D106 | 8-719-002-83 | DIODE US1090M |
| D151 | 8-719-002-83 | DIODE US1090M |
| D152 | 8-719-002-83 | DIODE US1090M |
| D301 | 8-719-002-83 | DIODE US1090M |
| D302 | 8-719-100-15 | DIODE RD3.0EB2 |
| D501 | 8-719-310-83 | DIODE SEL1824W |
| D502 | 8-719-310-75 | DIODE SEL1524W-C |
| D503 | 8-719-310-75 | DIODE SEL1524W-C |
| D504 | 8-719-310-75 | DIODE SEL1524W-C |
| F401 | △.1-532-203-00 | (AEP,UK,WG)...FUSE, TIME-LAG (2A) |
| F401 | △.1-532-579-00 | (US).....FUSE, GLASS TUBE (4A) |
| F402 | △.1-532-203-00 | (E)...FUSE, TIME-LAG (2A) |
| F403 | △.1-532-203-00 | (E)...FUSE, TIME-LAG (2A) |
| IC101 | 8-749-900-34 | IC STK4182MK2 |
| IC102 | 8-759-111-68 | IC UPC1237HA |
| IC103 | 8-759-113-18 | IC UPC4574C |
| IC104 | 8-759-604-34 | IC M5F7815 |
| IC105 | 8-759-604-52 | IC M5F7915 |
| J101 | 1-565-406-21 | JACK, PIN 1P (MONO INPUT FLAT) |
| J102 | 1-565-258-21 | JACK, PIN 4P (MONO INPUT 3D/LINE OUT) |
| J103 | 1-565-320-11 | JACK, PIN 6P (STEREO INPUT) |
| L101 | *1-420-872-00 | COIL, AIR CORE 1.9UH |
| L151 | *1-420-872-00 | COIL, AIR CORE 1.9UH |
| Q101 | 8-729-108-14 | TRANSISTOR 2SA988F |
| Q102 | 8-729-108-14 | TRANSISTOR 2SA988F |
| Q104 | 8-729-600-27 | TRANSISTOR 2SC634SP |
| R001 | 1-249-496-11 | CARBON 100K 5% 1/2W |
| R002 | 1-249-496-11 | CARBON 100K 5% 1/2W |
| R102 | 1-246-545-00 | CARBON 1M 5% 1/4W |
| R103 | 1-246-545-00 | CARBON 1M 5% 1/4W |
| R104 | 1-246-545-00 | CARBON 1M 5% 1/4W |
| R105 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R106 | 1-249-466-11 | CARBON 56K 5% 1/4W |
| R107 | 1-247-710-11 | CARBON 560 5% 1/4W |
| R108 | 1-249-466-11 | CARBON 56K 5% 1/4W |
| R109 | 1-247-710-11 | CARBON 560 5% 1/4W |
| R110 | 1-247-717-11 | CARBON 2.2K 5% 1/4W |
| R111 | 1-247-756-11 | CARBON 2.2K 5% 1/2W |
| R112 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R113 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R114 | 1-247-716-11 | CARBON 1.8K 5% 1/4W |
| R115 | △.1-217-151-00 | RES, METAL PLATE 0.22 2W |
| R116 | 1-247-726-11 | CARBON 33K 5% 1/4W |
| R117 | 1-247-727-11 | CARBON 10 5% 1/2W |
| R118 | 1-247-727-11 | CARBON 10 5% 1/2W |
| R119 | 1-249-465-11 | CARBON 47K 5% 1/4W |
| R121 | 1-247-725-11 | CARBON 10K 5% 1/4W |
| R123 | 1-249-467-11 | CARBON 68K 5% 1/4W |
| R124 | 1-247-717-11 | CARBON 2.2K 5% 1/4W |
| R125 | 1-249-469-11 | CARBON 100K 5% 1/4W |
| R126 | 1-247-725-11 | CARBON 10K 5% 1/4W |
| R127 | △.1-249-458-11 | CARBON 8.2 5% 1/4W |
| R128 | 1-247-724-11 | CARBON 8.2K 5% 1/4W |
| R129 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R130 | 1-249-466-11 | CARBON 56K 5% 1/4W |
| R131 | 1-244-860-11 | CARBON 300 5% 1/2W |
| R133 | 1-244-860-11 | CARBON 300 5% 1/2W |
| R134 | 1-247-751-11 | CARBON 820 5% 1/2W |
| R135 | 1-247-713-11 | CARBON 1K 5% 1/4W |

| Ref.No. | Part No. | Description |
|---------|----------------|-------------------------------------------------|
| R136 | 1-249-469-11 | CARBON 100K 5% 1/4W |
| R137 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R138 | 1-249-469-11 | CARBON 100K 5% 1/4W |
| R139 | 1-247-725-11 | CARBON 10K 5% 1/4W |
| R140 | 1-247-717-11 | CARBON 2.2K 5% 1/4W |
| R141 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R142 | 1-249-604-11 | CARBON 150K 5% 1/4W |
| R143 | 1-249-604-11 | CARBON 150K 5% 1/4W |
| R144 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R145 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R146 | 1-247-887-00 | CARBON 220K 5% 1/4W |
| R147 | 1-247-752-11 | CARBON 1K 5% 1/2W |
| R148 | 1-247-752-11 | CARBON 1K 5% 1/2W |
| R152 | 1-246-545-00 | CARBON 1M 5% 1/4W |
| R153 | 1-246-545-00 | CARBON 1M 5% 1/4W |
| R154 | 1-246-545-00 | CARBON 1M 5% 1/4W |
| R155 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R156 | 1-249-466-11 | CARBON 56K 5% 1/4W |
| R157 | 1-247-710-11 | CARBON 560 5% 1/4W |
| R158 | 1-249-466-11 | CARBON 56K 5% 1/4W |
| R159 | 1-247-710-11 | CARBON 560 5% 1/4W |
| R160 | 1-247-756-11 | CARBON 2.2K 5% 1/2W |
| R161 | 1-247-756-11 | CARBON 2.2K 5% 1/2W |
| R164 | 1-247-716-11 | CARBON 1.8K 5% 1/4W |
| R165 | △.1-217-151-00 | RES, METAL PLATE 0.22 2W |
| R166 | 1-247-726-11 | CARBON 33K 5% 1/4W |
| R167 | 1-247-727-11 | CARBON 10 5% 1/2W |
| R168 | 1-247-727-11 | CARBON 10 5% 1/2W |
| R169 | 1-249-466-11 | CARBON 56K 5% 1/4W |
| R187 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R188 | 1-249-469-11 | CARBON 100K 5% 1/4W |
| R189 | 1-247-725-11 | CARBON 10K 5% 1/4W |
| R190 | 1-247-717-11 | CARBON 2.2K 5% 1/4W |
| R191 | 1-247-713-11 | CARBON 1K 5% 1/4W |
| R201 | 1-247-756-11 | CARBON 2.2K 5% 1/2W |
| R501 | 1-247-703-11 | CARBON 180 5% 1/4W |
| R601 | 1-247-727-11 | (WG)...CARBON 10 5% 1/2W |
| R602 | 1-247-727-11 | (WG)...CARBON 10 5% 1/2W |
| R603 | 1-247-727-11 | (WG)...CARBON 10 5% 1/2W |
| R604 | 1-247-727-11 | (WG)...CARBON 10 5% 1/2W |
| R651 | 1-247-727-11 | (WG)...CARBON 10 5% 1/2W |
| R652 | 1-247-727-11 | (WG)...CARBON 10 5% 1/2W |
| RV301 | 1-238-176-11 | RES, VAR, CARBON 100K/100K (ATTENUATOR) |
| RY101 | 1-515-533-11 | RELAY |
| RY102 | 1-515-614-11 | RELAY |
| RY301 | 1-515-614-11 | RELAY |
| S201 | 1-571-545-11 | SWITCH, ROTARY (SPEAKERS) |
| S301 | 1-571-546-11 | SWITCH, ROTARY (STEREO INPUT) |
| S401 | △.1-554-920-11 | SWITCH, PUSH (AC POWER)(1 KEY)(POWER) |
| S402 | △.1-570-307-11 | (E)...SWITCH, VOLTAGE CHANGE (VOLTAGE SELECTOR) |
| T901 | △.1-449-434-11 | (US).....TRANSFORMER, POWER |
| T901 | △.1-449-436-11 | (AEP,WG)...TRANSFORMER, POWER |
| T901 | △.1-449-435-11 | (E).....TRANSFORMER, POWER |
| T901 | △.1-449-445-11 | (UK).....TRANSFORMER, POWER |
| TB1 | 1-536-706-00 | TERMINAL BOARD (SPEAKER) |

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

ACCESSORY & PACKING MATERIAL

- A.1-526-565-00 (E)....AC PLUG ADAPTOR
 *3-701-948-17 (EXCEPT US)...LABEL, FUSE
 *3-701-030-00 LABEL, SERIAL NUMBER
 3-703-450-01 INSTRUCTION
 *3-704-346-01 SHEET (STANDARD), PROTECTION
 3-786-064-11 MANUAL, INSTRUCTION
 *3-346-378-01 (EXCEPT US)...INDIVIDUAL CARTON
 *4-921-373-11 (US).....INDIVIDUAL CARTON
 *4-921-311-01 (EXCEPT US)...CUSHION
 *4-921-371-01 (US).....CUSHION

Note: The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

Block Diagram

